PATENT SPECIFICATION

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(54) IMPROVEMENTS RELATING TO TRANSFER PRINTING

(71) We, STOREY BROTHERS AND COMPANY LIMITED, a British Company, of White Cross, Lancaster LA1 4XH, England, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the dye transfer printing process and in particular to printed supports or carriers for transfer printing.

The dye transfer process is well known and described for example in British Patent Specifications Nos. 951987, 1,052,625, 1,189,026, 1,190,889, 1,221,126, 1,227,271, 1,243,223 and 1,127,372 Canadian Patent Specification No. 760915 and in pages 126 to 131 of No. 71 of Teinture et Appreties, August 1962.

The process consists of placing a support or carrier coated with a sublimable dye or dyes in face to face contact with the material to be dyed, for example a textile material, and heating the support or carrier so that the dye sublimes from it and deposits on the material. The heating can, for example, be effected using an iron or by passing the carrier and material to be dyed between rollers, the one which is in contact with the carrier being heated. In some circumstances it may be desirable to carry out the sublimation under reduced pressure, for example to obtain more even sublimation or an improved fastness with some dyes.

The carrier or support may be any backing material able to withstand the heat of the transfer process which is normally from 80 to 300°C, and on which the dyes may be successfully coated e.g. by printing. The most common carrier is paper because of its cheapness and the dyes are normally printed on this paper by means of a printing ink containing the sublimable dye or dyes in the form of a pattern which is transferred to the material to be dyed.

The dye or dyes should be readily sublimable and should normally sublime at a temperature in the range 80 to 300°C. The dyes may be fibre reactive or non-fibre reactive with the fibres of the material being dyed.

Usually the printing ink which is applied to the support or carrier is in the form of a solution or dispersion of the dye together with a binder in a solvent such as a spirit solvent. The binder if present should not sublime or transfer across to the material being dyed and for this reason it should have a softening point above that at which the dye transfer is effected. The particular binders and dyes which are usually present in the printing inks are fully exemplified in the above list of documents to which reference is made.

The preparation of printed supports using paper suffers from certains defects arising from the transfer of the ink from the face to the back of the transfer papers whilst they are rolled up or placed on top of each other after printing. These defects are known as "pick-off" or "set-off" when the ink is bodily transferred from the face of one layer to the back of the next layer of the supports and as "mark-off" when the pigment only has transferred, presumably by sublimation.

The result of these defects is not only the tendency for the printed patterns to be slightly smudged but also that since the paper support is permeable to the dye vapour the dye on the back of the printed support migrates through the paper during the transfer process and is deposited on the material being dyed together with the dye pattern causing unwanted patches of colour on the dyed material.

It is an object of the present invention to minimise these problems.

According to the invention there is provided a printed support suitable for use in the dye transfer process comprising a paper support on one surface of which has been applied a dye pattern of a sublimable dye or dyes and on the other surface of which has been applied a lacquer which reduces the permeability of that surface of the paper support to the diffusion of sublimed dyes. This lacquer can also render the surface of the paper support non-adherent and/

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